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ABSTRACT

This paper lists the commands for three programs in Logo: Peppy and the Maze, Caterpillars and Butterflies, and the Robot Arm. (EW)

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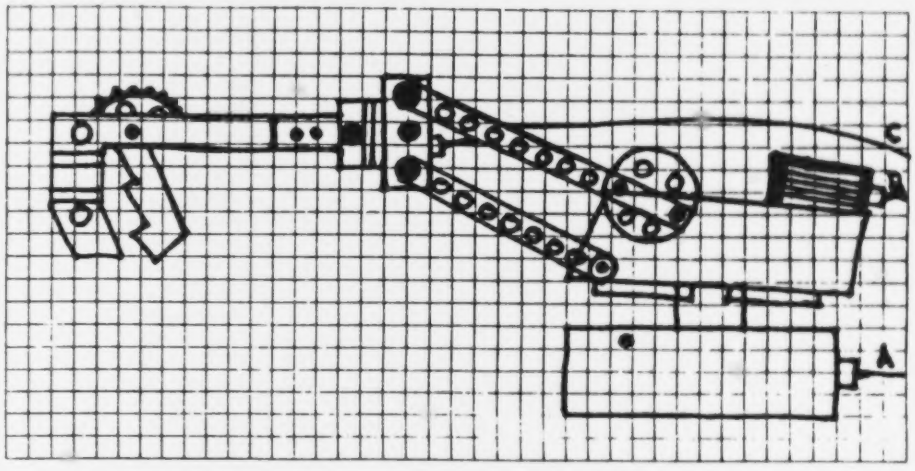
CRAZY CRITTERS:

Creating New Life Forms in Logo



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May 7, 1988

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CRAZY CRITTERS:

Creating New Life Forms in Logo

1. Peppy and the Maze
2. Caterpillars and Butterflies
3. The Robot Arm

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```
to startup
getshapes
gettools "peppysys
end

to maze
cg
pu setc 3
setpos [-125 -50]
seth 0
block 8
rt 90
block 15
rt 90
block 8
rt 90
block 4
rt 90
block 5
lt 90
block 6
lt 90
block 4
rt 90
block 2
pu
fd 48
```



```
rt 90
fd 32
rt 90
pd
block 2
end

to robot
tell 1
pu
st
setc 2
setpos [85 -10]
seth (random 4) * 90
shape.change
end

to food
pu setsh 7
setc 1
setpos [-107 -60]
pd
stamp
pu
setpos [-88 -60]
pd
stamp
```



```
end

to threshold
op 1523
end
```

PEPPY 2 PROGRAM 2.1

```
to startup
getshapes
gettools "peppysys
end

to maze
cg
pu setc 3
setpos [-125 -50]
seth 0
block 8
rt 90
block 15
rt 90
block 8
rt 90
block 4
rt 90
block 5
lt 90
block 6
lt 90
block 4
rt 90
block 2
pu
fd 48
```

PEPPY 2 PROGRAM 2.2

```
rt 90
fd 32
rt 90
pd
block 2
pu
seth 0
fd 32
rt 90
fd 32
rt 180
block 1
end

to robot
tell 1
pu
st
setc 2
setpos [85 -10]
seth (random 4) * 90
shape.change
end

to food
pu setsh 7
setc 1
```

PEPPY 2 PROGRAM 2.3

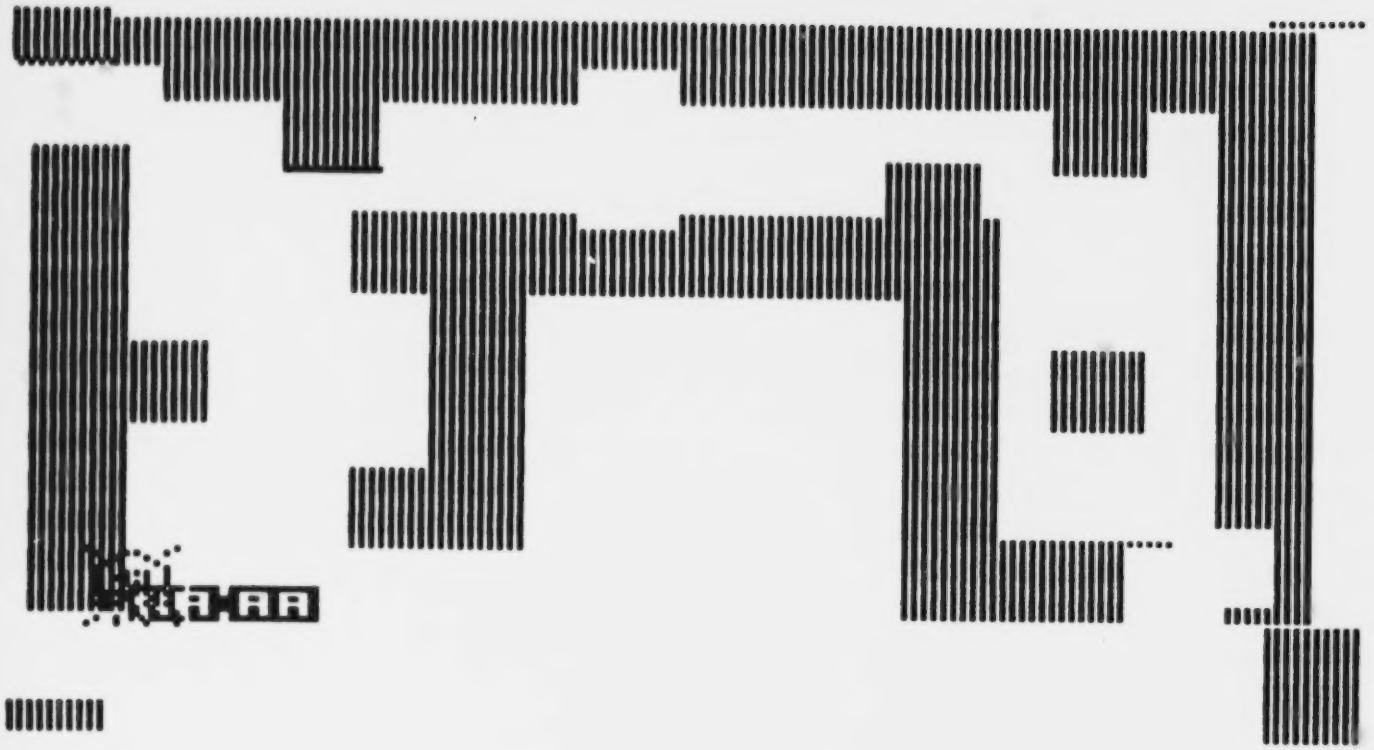
```
setpos [-107 -60]
pd
stamp
pu
setpos [-88 -60]
pd
stamp
end

to threshold
op 1785.6
end
```

```
to block :number
setsh 11
pd
repeat :number [stamp pu fd 16 pd]
end

to shape.change
setsh (heading / 90) + 3
end

to move :moves.used
if colorunder = 1 [type (se [You used]
    :moves.used [moves.]) show " win
    stop]
if colorunder = 3 [bk 8 lt (1 + random
    3) * 90 shape.change]
fd 4
if :moves.used > threshold [slowpoke
    stop]
move :moves.used + 1
end

to peppy
rg
maze
food
robot
```



```
move 0
end

to win
setsh 8
tell 3 ht pu setpos [-130 -75]
repeat 20 [label [Congratulations!]
    wait 5]
end

to startup
rg
ct
end

to robot
tell 1
pu
st
setc 2
setpos [85 -10]
seth (random 4) * 90
shape.change
end

to food
pu setsh 7
```

```
setc 1
setpos [-107 -60]
pd
stamp
pu
setpos [-88 -60]
pd
stamp
end

to threshold
op 1523
end

to mazetest
food
robot
move 0
end

to slowpoke
setsh 9
type [Slowpoke! Your batteries ran
     out.]
end
```



PEPPY PRISON 4.1

```
to block :number
setsh 11
pd
repeat :number [stamp pu fd 16 pd]
end

to shape.change
setsh (heading / 90) + 3
end

to move :moves.used
tell 1
if colorunder = 1 [type (se [You used]
    :moves.used [moves.]) show " win
    stop]
if colorunder = 3 [bk 8 lt (1 + random
    3) * 90 shape.change]
fd 4
if hittingp 2 [eat]
move.predator
if :moves.used > threshold [slowpoke
    stop]
move :moves.used + 1
end

to peppy
rg
```



```
maze
food
robot
pred.set
move 0
end

to win
setsh 8
tell 3 ht pu setpos [-130 -75]
repeat 20 [label [Congratulations!]
    wait 5]
tell 2 setsh 17
end

to eat
tell 2
setsh 16
tell 3 ht pu setpos [-130 -75]
repeat 20 [label [Fresh AA batteries!
  My favorite!!!] wait 5]
tell 1 ht
tell 2 setsh 17
end

to startup
rg
```

```
ct
end

to robot
tell 1
pu
st
setc 2
setpos [85 -10]
seth (random 4) * 90
shape.change
end

to food
pu setsh 7
setc 1
setpos [-107 -60]
pd
stamp
pu
setpos [-88 -60]
pd
stamp
end

to threshold
op 1523
```



```
end

to mazetest
food
robot
pred.set
move 0
end

to slowpoke
setsh 9
type [Slowpoke! Your batteries ran
     out.]
end

to pred.set
tell 2
setsh 12
setc 3
pu st
setpos [-80 30]
end

to turtle.pos :who
op ask :who [pos]
end
```

```
to hittingp :who
op 17 > distance pos turtle.pos :who
end

to move.predator
tell 2
make "peppy.pos turtle.pos 1
make "pred.pos turtle.pos 2
seth (90 * (round ((towards
   :peppy.pos) / 90)))
pred.change
fd 5
if colorunder = 3 [bk 10 stop]
if hittingp 1 [eat]
end

to pred.change
setsh (12 + (heading / 90))
end

to distance :pt1 :pt2
make "pt1x first :pt1
make "pt2x first :pt2
make "pt1y last :pt1
make "pt2y last :pt2
make "difx :pt1x - :pt2x
make "dify :pt1y - :pt2y
```



```
op sqrt ((:difx * :difx) + (:dify *
  :dify))
end
```

```
to startup
getshapes
gettools "peppy.predsys
end

to maze
cg
pu setc 3
setpos [-125 -50]
seth 0
block 8
rt 90
block 15
rt 90
block 8
rt 90
block 4
rt 90
block 5
lt 90
block 6
lt 90
block 4
rt 90
block 2
pu
fd 48
```



```
rt 90
fd 32
rt 90
pd
block 2
pu
seth 0
fd 32
rt 90
fd 32
rt 180
block 1
end

to robot
tell 1
pu
st
setc 2
setpos [85 -10]
seth (random 4) * 90
shape.change
end

to food
pu setsh 7
setc 1
```



```
setpos [-107 -60]
pd
stamp
pu
setpos [-88 -60]
pd
stamp
end

to threshold
op 1785.6
end
```

```
to startup
gettools "peppy.pledgesys
end

to maze
cg
pu setc 3
setpos [-125 -50]
seth 0
block 3
rt 90
block 3
lt 90
block 3
pu
bk 48
rt 90
bk 48
lt 90
pd
block 5
rt 90
block 8
rt 90
block 3
rt 90
pu
```



```
fd 48
rt 180
pd
block 6
pu
bk 48
rt 90
bk 48
lt 90
pd
block 7
rt 90
block 4
rt 90
block 4
pu
bk 64
lt 90
pd
block 4
rt 90
block 7
rt 90
pu
fd 32
rt 90
block 6
```



```
pu
bk 96
lt 90
bk 32
lt 90
block 7
end

to robot
tell 1
pu
st
setc 2
setpos [85 -40]
seth (random 4) * 90
shape.change
end
```

```
to block :number
setsh 11
pd
repeat :number[stamp pu fd 16 pd]
end

to food
pu setsh 7
setc 1
setpos [-110 -60] pd stamp
pu setpos [-91 -60]
pd stamp
end

to robot
tell 1 st
pu setpos [-15 0]
setsh 3 setc 2
seth (random 4) * 90
shape.change
end

to shape.change
setsh (heading / 90)+3
end

to free.run :counter
```



```
fd 4
if colorunder = 3 [wall.follow
     (:counter + 1) 0]
if colorunder = 1 [win stop]
free.run :counter + 1
end

to peppy :north
cg maze food robot
shape.change
make "turning 0
make "throw.mark "
ct
free.run 0
end

to win
setsh 8
tell 3 ht pu setpos [-130 -75]
repeat 20[label [Congratulations!] wait
     5 ]
end

to startup
rg ct
end
```

```
to wall.follow :counter :turning
bk 4 lt 90 shape.change
make "turning :turning - 90
wall.run :counter + 1 :turning
if :throw.mark = "north [stop]
end

to wall.run :counter :turning
if :turning = 0 [make "throw.mark
    "north stop]
if colorunder = 1 [win stop]
if not (wall.on.rightp) [rt 90 make
     "turning :turning + 90
     shape.change]
fd 4
ifelse colorunder = 3 [move.predator
     wall.follow :counter + 1 :turning]
     [move.predator wall.run :counter +
     1 :turning]
end

to wall.on.rightp
rt 90 fd 4
make "wallcheck colorunder
bk 4 lt 90
ifelse :wallcheck = 3 [op "true] [op
     "false]
```



```
end

to mazetest :north
food robot
shape.change
make "turning 0
make "throw.mark"
ct
free.run 0
end
```

PHANTOM FISHTANK

CATERPILLARS AND BUTTERFLIES

This obscure set of rules must be seen to be believed. Two kinds of creatures exist in this world - caterpillars and butterflies. Breeding grounds where butterflies can run wild add to the unpredictability. "Caterpillars and Butterflies" creates interesting residual patterns. It will be enjoyed by all ages.

```
TO ARM
MAKE "RECORD "
ARM1
END

TO ARM1
COMMANDS READCHAR
ARM1
end

TO COMMANDS :KEY
IF :KEY = "R [TURN.RIGHT R]
IF :KEY = "L [TURN.LEFT L]
IF :KEY = "U [UP U]
IF :KEY = "D [DOWN D]
IF :KEY = "C [CLOSE C]
IF :KEY = "O [OPEN O]
IF :KEY = "P [AO ]
IF :KEY = "S [AO STOPALL]
END

TO TURN.RIGHT
TTO "A
SETEVEN
ONFOR 10
END

TO TURN.LEFT
TTO "A
SETODD
ONFOR 10
END

TO UP
ao
TTO "B
SETEVEN
ONFOR 1
END

TO DOWN
ao
TTO "B
SETODD
ONFOR 1
END
```



```
TO OPEN
TTO "C
SETEVEN
ONFOR 3
END

TO CLOSE
TTO "C
SETODD
ONFOR 3
END

TO R
MAKE "RECORD WORD :RECORD "R
END

TO L
MAKE "RECORD WORD :RECORD "L
END

TO U
MAKE "RECORD WORD :RECORD "U
END

TO D
MAKE "RECORD WORD :RECORD "D
END

TO O
MAKE "RECORD WORD :RECORD "O
END

TO C
MAKE "RECORD WORD :RECORD "C
END
```